REMARKS

Claim Objections

The Examiner objected to claims 1, 9, 14, 18 and 32 because of the informalities noted in section 3 of the Office Action. Applicant amends these claims to address the issues raised by the Examiner, and also makes minor punctuation amendments.

Claim Rejections under 35 U.S.C. § 103

Claims 1-6, 8-15, 17-26, 28-30, 32-41 and 43-45

- Claims 1, 2, 8-11, 17-19, 28-30, 32-34 and 43-45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang et al. (U.S. Publication No. 2003/0191368 A1 [hereinafter "Wang"]) in view of Kaneko et al. (U.S. Patent No. 6,422,994 [hereinafter "Kaneko"]) or Imaizumi et al. (U.S. Pat. No. 6,293,911 [hereinafter "Imaizumi"]).

- Claims 3-6, 12-15, 20-26 and 35-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang in view of Kaneko.

Applicant respectfully traverses these rejections in view of the following remarks. An aspect of the invention is directed to imaging a patient's tissue to determine if a disease is present. Exemplary embodiments of the invention include a method and apparatus to obtain data from a fluorescent-light image and data from a reflected light image. A tissue-state image forming means assigns a hue to the data obtained from the fluorescent image. A tissue-form image forming means assigns a luminosity for pixels of the reflected light image. (See page 39, line 12-page 43, line 6, of the specification). Data pertaining to the hue and the luminosity is

then combined to form an image. Thus, an accurate image is formed that permits an operator to easily judge a state of the tissue in a target area.

The prior art has suffered due to inaccurate reading that are caused by unevenness on a surface of the examined tissue. Because of the unevenness, the distance that stimulating light must travel to the target area is not uniform. Fluorescent light that is emitted from the target area is affected by the non-uniform distance and may produce inaccurate results. An exemplary aspect of the invention addresses this problem by combining the data pertaining to the hue of the fluorescent image and the luminosity data obtained from the reflected light.

It is the Examiner's opinion that Wang does not disclose adjusting the brightness of the display based on obtained image information. Thus, the Examiner cites Kaneko for teaching to observe changes in levels of brightness in a fluorescent image (col. 16 lines 25-28 of Kaneko) and also cites Imaizumi for teaching that the presence of a lesion in a fluorescence observation system is indicated by the level (or degree) of brightness of an image (col. 33 lines 37-40 of Imaizumi).

In response, Applicant points out that observing changes in levels of brightness in a fluorescent image would not have taught one to modify Wang to obtain the claimed invention. In fact, the present specification discloses that it is known that the strength of florescent light emitted from a normal tissue and the strength of fluorescent light emitted from a diseased tissue are different. (See page 1, lines 15-17 of the present specification.)

It is therefore submitted that the unique features of independent claims 1, 9, 18 and 32 are not taught nor suggested by the applied references. As noted in paragraph [0061] of Wang, "an

important feature of the invention [of Wang] ...is a process to compensate for shadows on the tissue 16 surface." However, Wang does not recognize the problem disclosed in the present specification regarding the target tissue having a non-uniform surface resulting in a change in a distance that light has to travel to reach the surface.

The Examiner's asserted motivation for combining Wang with Kaneko and Imaizumi is "to additionally characterize the presence of a lesion in the composite image based on the brightness level" and to "enable enhanced visual discrimination between normal and cancerous tissue." (See Office Action, page 4, lines 2-7). However, Applicant respectfully submits that a feature of "additionally characterizing" would not have taught nor suggested the present invention because the claims recite, *inter alia*, combining the tissue-state image and the tissue-form image to form a composite-image. Thus, any teaching of "additionally characterizing" would not have taught nor suggested the presently claimed features regarding the combining of the claimed images.

Moreover, Wang discloses an image overlay for overlaying a fluorescent-light image on a white light image. Since the color of the overlay image is a mixed color of the fluorescent-light image and the white light image, the color of the overlay image does not accurately reflect a tissue state. In contrast, in the present invention, information regarding a tissue state and information regarding a tissue form can be obtained separately. The information regarding a tissue state is obtained by assigning a color or brightness to a computed image. The information regarding a tissue form is obtained by assigning a color or brightness, which corresponds to the color or brightness used to obtain the information regarding a tissue state, to a fluorescent-light

image or a reflected-light image. Further, a synthesis image can be produced by controlling the colors and the brightness independently each other.

Kaneko and Imaizumi disclose displaying a diseased tissue by changing brightness information. However, in Kaneko and Imaizumi, the brightness information is used as information representing the tissue state. Kaneko and Imaizumi fail to disclose, teach or even suggest the use of brightness information in representing the tissue form.

Therefore, the exemplary feature of a tissue form image that is produced by assigning the color information or brightness information to the fluorescent-light image or reflected-light image, is not taught nor suggested in any one of Wang, Kaneko and Imaizumi, resulting in the independent claims, and claims dependent therefrom, being patentable over the cited references.

Accordingly, claims 1, 9, 18 and 32 are submitted to be patentable over Wang in view of Kaneko and/or Imaizumi and the rejection thereof under 35 U.S.C. § 103(a) should be withdrawn. The rejection of dependent claims 2-6, 8, 10-15, 17, 19-26, 28-30, 33-41 and 43-45 should likewise be withdrawn at least by virtue of these claims respectively depending from claims 1, 9, 18 and 32.

Claims 7, 16, 27, 31, 42 and 46

Claims 7, 16, 27 and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang in view of Kaneko and further in view of Zeng et al. (U.S. Patent No. 5,647,368).

Claims 31 and 46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang in view of Kaneko and further in view of Hayashi et al. (U.S. Patent No. 6,433,345).

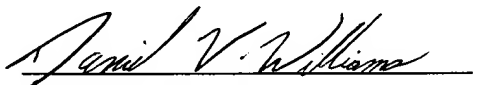
Applicant respectfully traverses these rejections in view of the following remarks.

Applicant submits that the additional application of Zeng et al. and Hayashi et al. fails to supplement and make obvious the deficient teachings of Wang, Kaneko and Imaizumi in regard to independent claims 1, 9, 18 and 32. Thus, claims 7, 16, 27, 31, 42 and 46 are patentable over the applied references at least by virtue of their respective dependences on the independent claims.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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